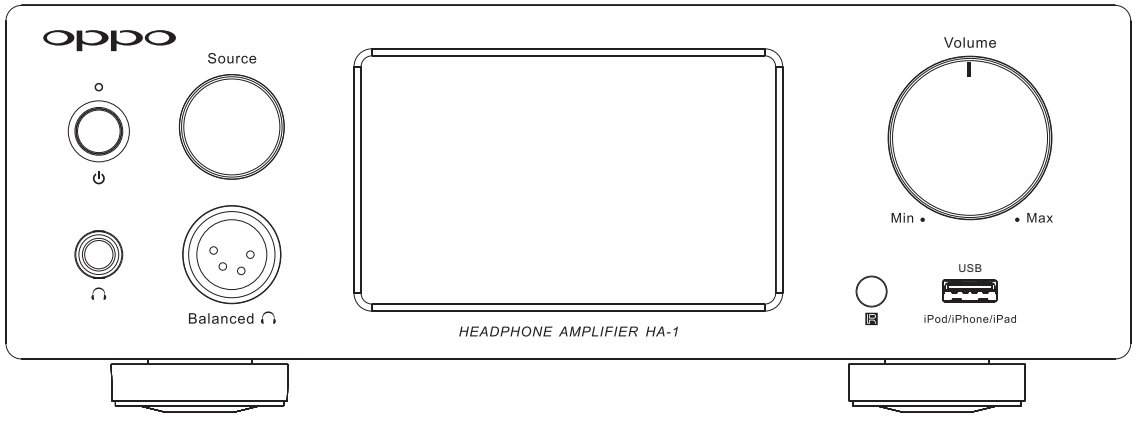
HEADPHONE AMPLIFIER HA-1

USER MANUAL



Made for iPod iPhone iPad

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Important Information

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operation and maintenance (servicing) instruction in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE. DO NOT OPEN THE CABINET. REFER SERVICING TO QUALIFIED PERSONNEL ONLY. THE APPARATUS SHALL NOT BE EXPOSED TO DRIPPING OR SPLASHING AND THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES SHALL BE PLACED ON THE APPARATUS.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this device near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatuses (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plug, receptacle, and the point where it exits from the apparatus.
11. Only use attachments and accessories specified by the manufacturer.
12. Unplug this apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

⚠ **WARNING:** DO NOT INGEST BATTERY, CHEMICAL BURN HAZARD.

The remote control supplied with this product contains a coin/button cell battery. If the coin/ button cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death. Keep new and used batteries away from children. If the battery compartment does not close securely, stop using the product and keep it away from children. If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type. Batteries shall not be exposed to excessive heat such as sunshine, fire or the like.

WARNING: The mains plug is used as disconnect device. The disconnect device shall remain readily operable.

Precautions

- Before connecting the AC power cord to the appliance, make sure the voltage designation of the appliance corresponds to the local electrical supply. If you are unsure of your power supply, contact your local power company. The acceptable power input range is AC 110 V - 120 V ~ / 220 V - 240 V ~, 50 / 60 Hz.
- The appliance with CLASS I construction should be connected to a mains socket with a protective earth connection.
- The device receives power from the AC power source as long as it is connected to the wall outlet, even if the device itself has been turned off.
- Unplug the power cord if you are not going to use the product for an extended period of time.
- Hold the power plug when unplugging. Do not pull on the cord.
- To ensure proper ventilation around this product, do not place this product on a sofa, bed, or rug. When installing this product on a wall or bookshelf, make sure to provide appropriate space. We recommend leaving 4 in (10 cm) of free space at the top, the sides, and the rear.
- High temperature will lead to abnormal operation of this unit. Do not expose this unit to direct sunlight or near other heat sources.

CE mark

This product compiles with European Low Voltage (2006/95/CE), Electromagnetic Compatibility (2004/108/EC) and Environmentally-friendly design of Energy-related Products (2009/125/EC) Directives when used and installed according to this instruction manual.

C-Tick mark

This product complies with Australian C-Tick electromagnetic compatibility (EMC) emission requirements, according to the requirements of the Radio communications Labelling (Electromagnetic Compatibility) Notice 2008.

WEEE symbol

Correct Disposal of This Product. (Waste Electrical & Electronic Equipment) Applicable in the European Union and other European countries with separate collection systems.

This marking on the product, accessories or literature indicates that the product and its electronic accessories (e.g. remote handset) should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of household waste and recycle them responsibly to promote the sustainable reuse of material resources.

Legal Notice

“Made for iPod”, “Made for iPhone”, and “Made for iPad” mean that an electronic accessory has been designed to connect specifically to iPod, iPhone, or iPad, respectively, and has been certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards. Please note that the use of this accessory with iPod, iPhone, or iPad may affect wireless performance.

iPad, iPhone, iPod and iPod touch are trademarks of Apple Inc., registered in the U.S. and other countries.

Compatible iPod/iPhone/iPad Models

- USB works with iPhone 5S, iPhone 5C, iPhone 5, iPhone 4S, iPad (4th generation), iPad mini, iPod touch (5th generation).
- Bluetooth technology works with iPhone 5S, iPhone 5C, iPhone 5, iPhone 4S, iPad (4th generation), iPad mini, and iPod touch (5th generation).

Introduction

The HA-1 Headphone Amplifier draws upon the proven circuit design of the BDP-95 and BDP-105 Blu-ray Disc players. We designed the HA-1 headphone amplifier using the same universal approach we take with our Blu-ray players, so apart from being a high performance headphone amplifier, the HA-1 functions as an asynchronous USB DAC, stereo pre-amplifier, digital audio dock for mobile devices, and a Bluetooth audio transport.

The HA-1's analog audio section is a fully balanced, differential design with a Class A power amplifier circuit that is capable of driving the most difficult of headphones. Throughout the design process, our emphasis was in keeping the audio signal in the analog domain once it leaves the DAC. The HA-1 is anchored by a robust toroidal power transformer with linear power regulators and filters with custom made capacitors to ensure the headphone amplifier has a clean power source with plenty or energy reserves. Users have the choice between using a 4-pin balanced XLR or traditional quarter-inch (6.35 mm) headphone connection.

The power amplification section uses hand-picked and paired discrete components to ensure symmetry. The volume control knob is motor-driven and can be adjusted either by hand or via remote control while keeping the audio in the analog domain. Line level RCA and balanced XLR analog inputs and outputs are available, and built-in monitoring and protection circuitry guards against short-circuiting, overloading, and DC offset.

The HA-1 is ideally suited for high-resolution digital audio. It includes coaxial, optical, balanced AES/EBU digital inputs as well as an asynchronous USB DAC controlled by a 16-core XMOS chipset that supports both PCM and DSD formats. The same ESS 9018 Sabre^{32} Reference DAC and output driving state used in our audiophile Blu-ray players ensures high resolution performance with extremely low noise and distortion. You can easily connect the HA-1 to a computer via USB and enjoy jitter-free music using your preferred playback software. For added convenience, Bluetooth connectivity with the high quality aptX codec is also available.

Aesthetically, the HA-1 features a classic design with contemporary elements. It is housed in a thick aluminum chassis, and its familiar volume and source selection knobs are complemented by a high-quality TFT LCD display providing convenient access to the HA-1's intuitive user interface. Depending on your preferences or the mood of the music being played, you can choose between a classic VU meter, a modern spectrum display, or a simple informational summary to be displayed on the screen. A supplied IR remote and smartphone application via Bluetooth provide additional control and convenience.

The OPPO HA-1 Headphone Amplifier allows you to fully realize the potential of your high-end headphones. The HA-1 is a perfect match for OPPO Planar Magnetic headphones, and its power and versatility allow it to meet the demands of the most discerning music lover.

Accessories

Ensure that the following accessories have been included with your OPPO HA-1 Headphone Amplifier:

User Manual

Power Cable , about 4.5 feet

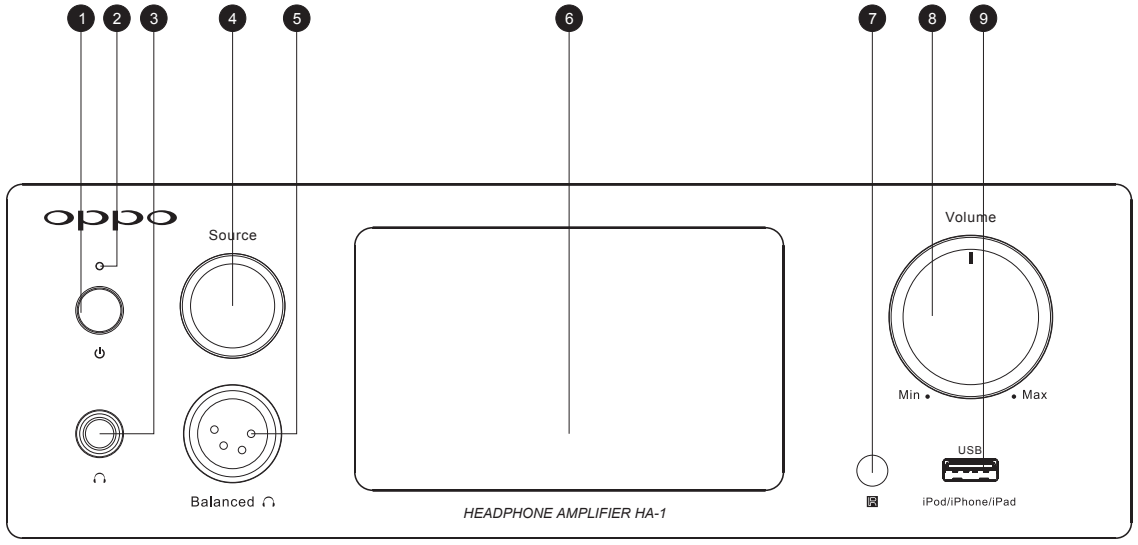
Remote Control with Battery

Bluetooth Antenna

3.5 mm to 6.35 mm Headphone Adapter

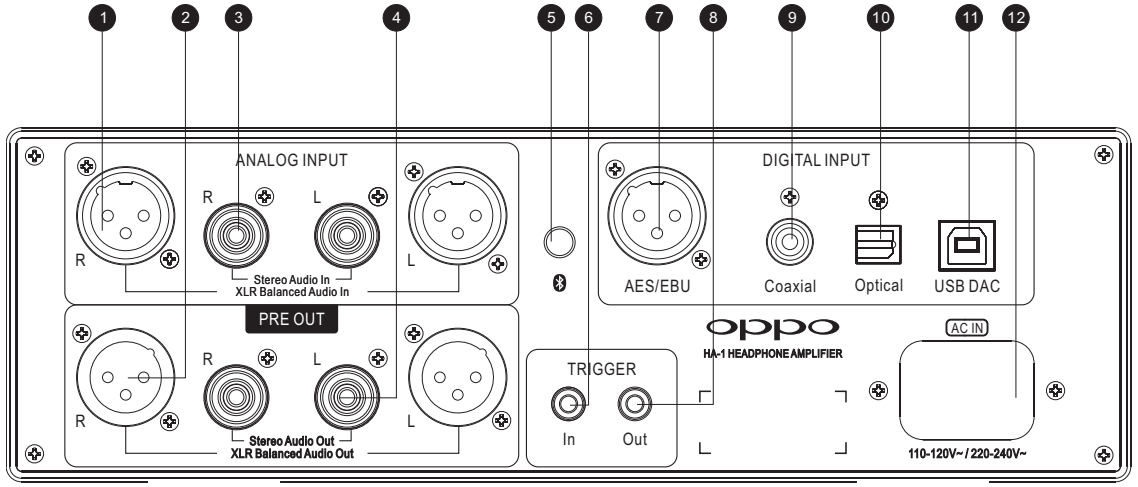
Installation

Front Panel Controls



1. Power Button
2. Power Status Indicator
3. 6.35 mm Headphone Jack
4. Source Selector Knob
5. Balanced Headphone Jack
6. Front Panel Display Window
7. IR Sensor Window
8. Volume Knob
9. Mobile USB Audio Input

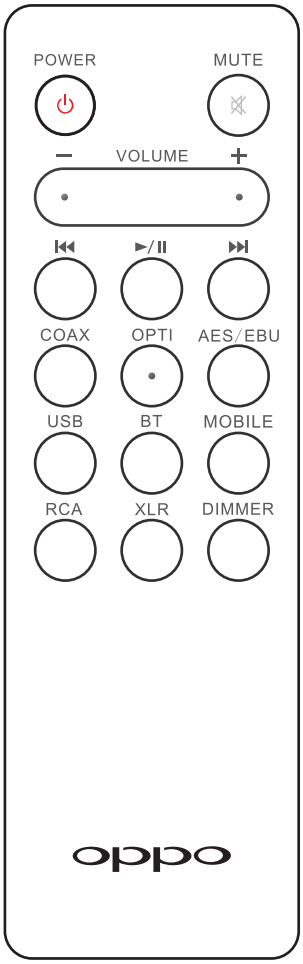
Back Panel Connectors



1. XLR Balanced Audio Input
2. Pre-Amplifier Output (XLR)
3. RCA Stereo Audio Input
4. Pre-Amplifier Output (RCA)
5. Bluetooth Antenna
6. Trigger Input
7. AES / EBU Digital Audio Input
8. Trigger Output
9. Coaxial Digital Audio Input
10. Optical Digital Audio Input
11. USB (Type B) Audio Input
12. AC Inlet

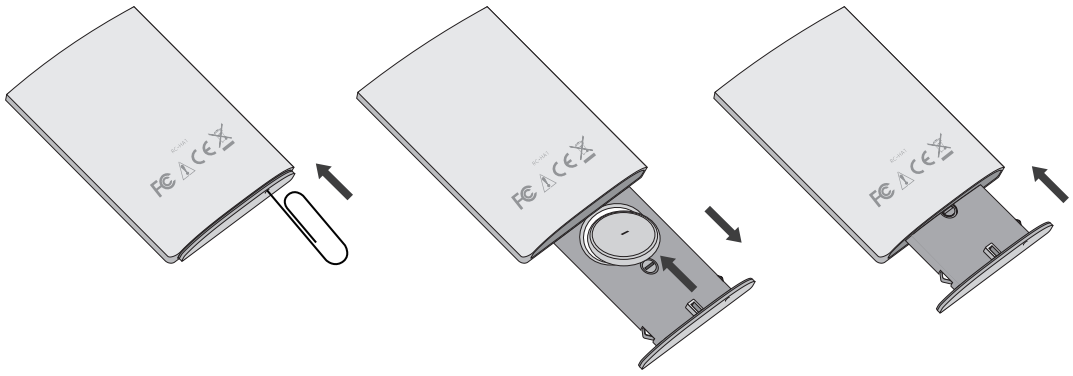
Remote Control

Remote Control Buttons



POWER: Toggle between STANDBY and ON
MUTE: Mute audio output
VOLUME +/-: Increase and decrease volume
PREV: Skip to previous track
PLAY / PAUSE: Start or Pause playback
NEXT: Skip to next track
COAX: Switch to Coaxial Digital Audio Input
OPTI: Switch to Optical Digital Audio Input
AES/EBU: Switch to AES/EBU Digital Audio Input
USB: Switch to USB (Type B) Audio Input
BT: Switch to Bluetooth Audio Input
MOBILE: Switch to Mobile USB Audio Input
RCA: Switch to RCA Stereo Audio Input
XLR: Switch to XLR Balanced Audio Input
DIMMER: Dim the front panel display

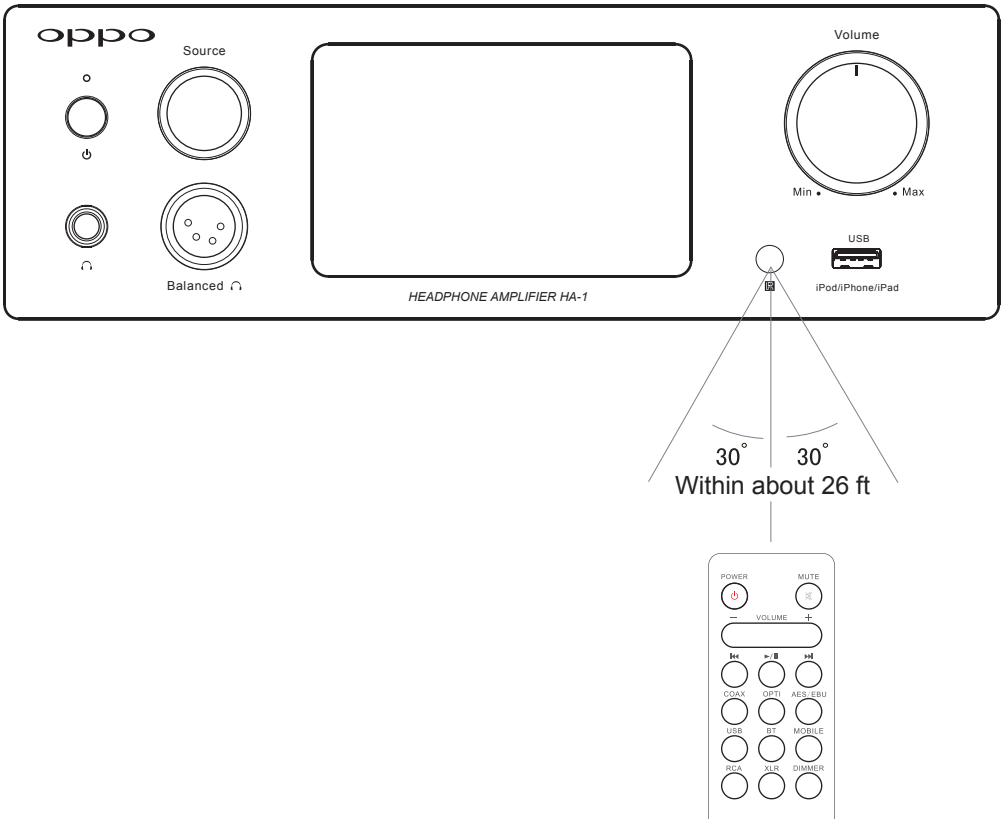
Battery Installation



The remote control comes with the battery pre-installed. When the original battery runs out, replace it with a new CR2032 button battery. To replace the battery, insert a straightened paper clip into the battery tray release hole at the

end of the remote control and push. The battery tray will pop slightly open. Pull out the battery tray with the remote control buttons facing down. Pay attention to the battery orientation while taking out the old battery. Place a new battery into the tray following the correct orientation by matching the polarity marks on the battery and the tray. The battery's positive side (the flat end that has a + sign on it) should face down and sink into the tray, while its negative side (the rounded end) should face up. Slide the battery tray back into the remote until it clicks. Test the remote to make sure it works well after the battery replacement. Dispose of the used battery immediately and responsibly.

Using the Remote Control



When using the remote control, the **IR Emitter** on the front of the remote should be pointed towards the **IR Sensor Window** on the HA-1 within a ±30° angle and a range of about 26 ft (8 meters).

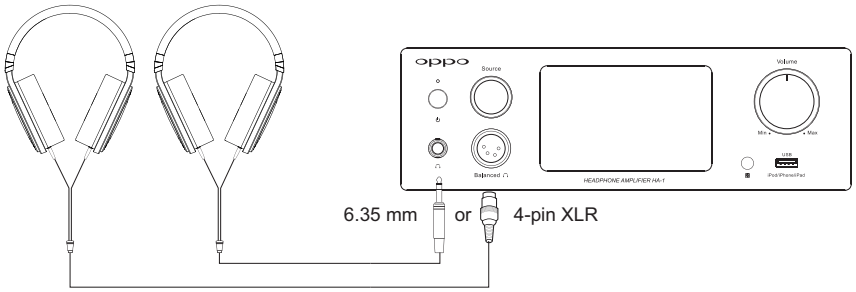
Remote Control App for Smartphones

A free remote control app is available for iPhone and Android-based smartphones. Please download from the app store of your smartphone. The app operates over Bluetooth and has the same functions as the physical remote control.

Headphone Output Connection

You can connect your headphones to the OPPO HA-1 using either a standard 6.35 mm connector or a 4-pin XLR balanced connector. If your headphones terminate with a 3.5 mm connector, you can use the supplied **3.5 mm to 6.35 mm Headphone Adapter** to connect the headphones to the HA-1.

For optimal sound quality, you can adjust the **Headphone Gain** between the **Normal** and **High** settings in order to properly drive headphones that are very sensitive or require additional power. Please refer to the ***Headphone Gain Selection*** section in the ***Advanced Operations*** chapter of this manual for details.

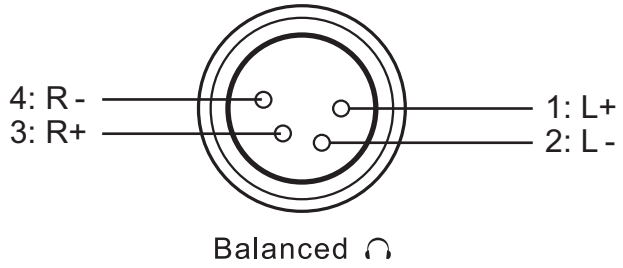


Notes:

- The **6.35 mm Headphone Jack** and **Balanced Headphone Jack** cannot be used simultaneously. When a 6.35 mm connector is plugged in, the **Balanced Headphone Jack** is muted.
- When plugging and unplugging the 6.35 mm connector, please completely insert or pull out the connector in a quick motion. Due to the physical shape of the 6.35 mm connector, keeping the connector plugged in half way causes a short circuit between the left and right output channels, and may trigger the short-circuit protection feature of the HA-1.

Balanced Headphone Jack Pin-out

The 4-pin XLR socket for the **Balanced Headphone Jack** uses the following pin-out assignment:



Notes:

- Pin 2 (**L-**) and pin 4 (**R-**) are individual signal pins and cannot be tied together as the ground pin for a single-ended headphone. Never use any adapter to connect the **Balanced Headphone Jack** to a single-ended headphone.

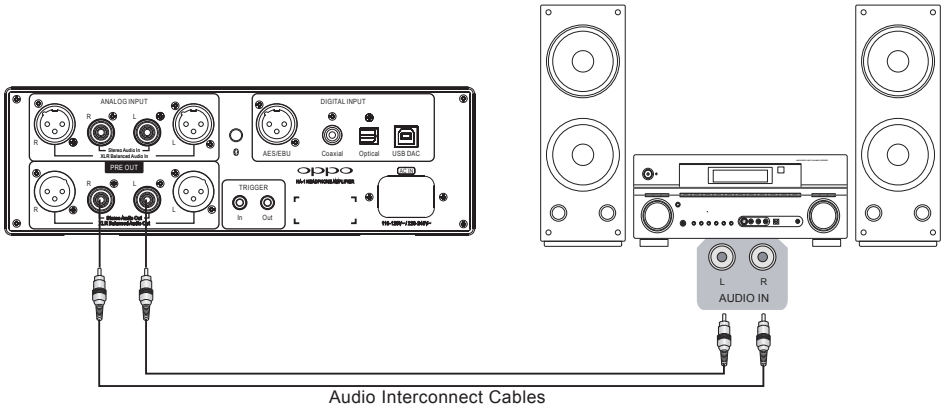
Using the HA-1 as a Pre-Amplifier or DAC

The OPPO HA-1 can be used as a pre-amplifier or a Digital-to-Analog Converter (DAC) by connecting its **Pre-amplifier Output** (PRE OUT) to a power amplifier or a pair of active speakers. The HA-1 offers both **RCA** and **XLR Balanced**

jacks. The output level is controlled by the **Volume Knob** or remote. The output is not muted when a pair of headphones is plugged in. It is muted when the remote **MUTE** button is pressed.

RCA Stereo Audio Outputs

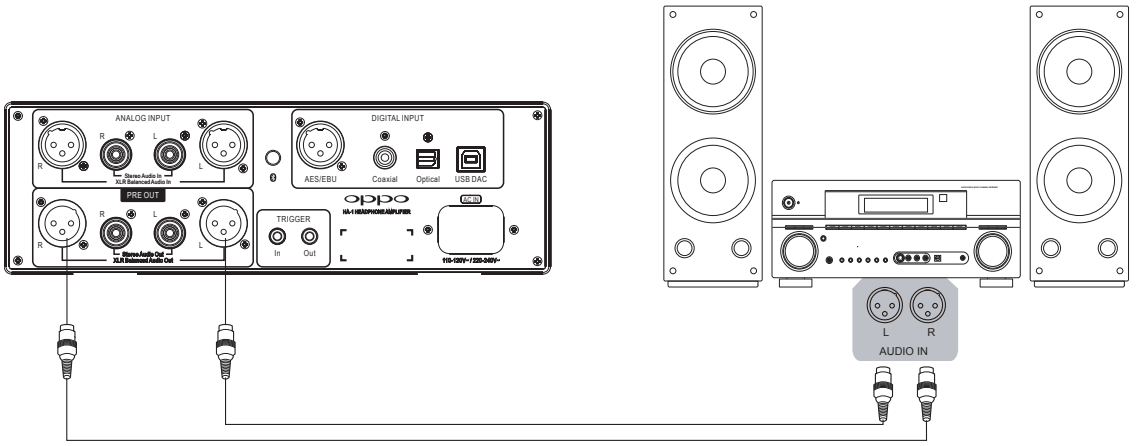
You can connect the HA-1 to a power amplifier or a pair of active speakers with RCA analog inputs using RCA audio interconnect cables.



Audio Interconnect Cables

XLR Balanced Audio Outputs

You can connect the HA-1 to a power amplifier or a pair of active speakers with XLR balanced inputs using XLR cables.



XLR Cables

Triggers

When used as pre-amplifier, the **Trigger Output** of the HA-1 can be connected to the trigger input of a stereo power amplifier using a 3.5 mm mono-to-mono mini-jack cable. When the HA-1 is turned on, the **Trigger Output** will supply a +12 V voltage signal so the connected power amplifier can be turned on automatically. The **Trigger Output** can supply up to 100 mA current.

The **Trigger Input** of the HA-1 can be connected to the trigger output of a source device or surround sound processor. This allows the HA-1 to be turned on and off together with the connected device.

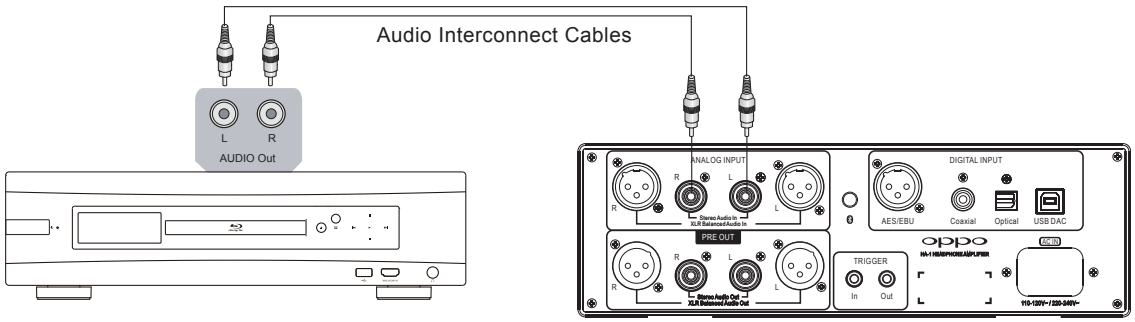
The use of **Trigger Output** or **Trigger Input** is not required. You can always manually turn on or off the HA-1 using the **POWER** button on the front panel or remote control.

Input Signal Connections

The OPPO HA-1 supports multiple analog and digital input connections. Depending on your intended usage, please connect one or more input sources to the HA-1.

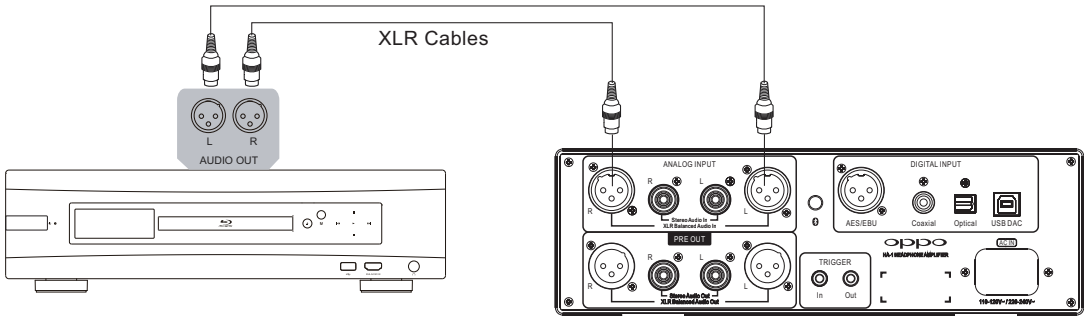
RCA Stereo Audio Inputs

You can connect an audio device with RCA analog outputs into the HA-1 using a pair of RCA cables. The analog signal will be amplified and sent to the headphone and line level outputs. This input source is labeled **RCA** on both the **Source Selection** screen and the remote control.



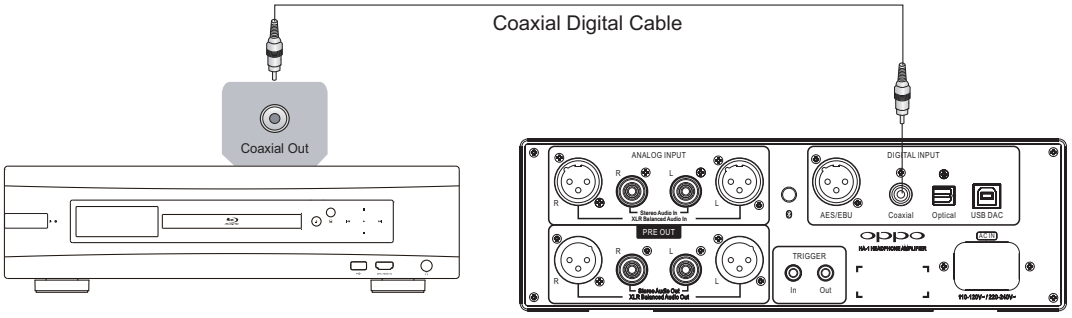
XLR Balanced Audio Inputs

You can connect an audio device with XLR balanced outputs into the HA-1 using XLR balanced cables. The analog signal will be amplified and sent to the headphone and line level outputs. This input source is labeled **XLR** on both the **Source Selection** screen and the remote control.



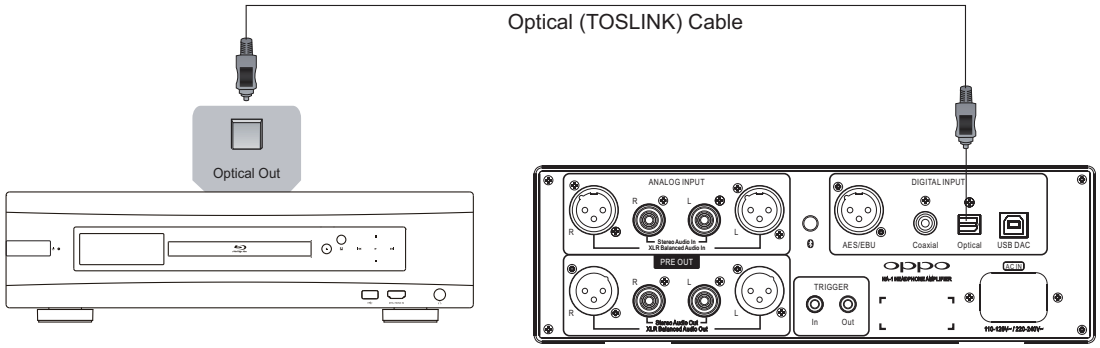
Coaxial Digital Audio Input

You can connect a device with a coaxial digital output into the **Coaxial Digital Audio Input** of the HA-1 using a coaxial digital (75 ohm) cable. The digital signal will be converted by the internal DAC and sent to the headphone and line level outputs. This input source is labeled **COAXIAL** on the **Source Selection** screen and **COAX** on the remote control.



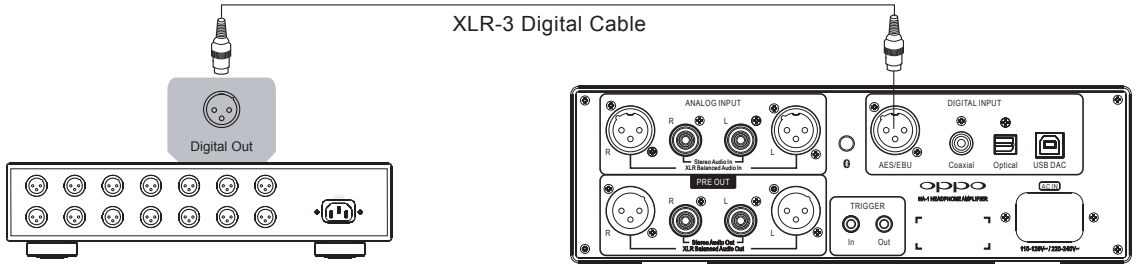
Optical Digital Audio Input

You can connect a device with an optical digital output into the **Optical Digital Audio Input** of the HA-1 using an optical cable (also known as a TOSLINK cable). The digital signal will be converted by the internal DAC and sent to the headphone and line level outputs. This input source is labeled **OPTICAL** on the **Source Selection** screen and **OPTI** on the remote control.



AES / EBU Digital Audio Input

You can connect a device with an AES / EBU digital output into the **AES / EBU Digital Audio Input** of the HA-1 using an XLR-3 (110 ohm) digital cable. The digital signal will be converted by the internal DAC and sent to the headphone and line level outputs. This input source is labeled **AES / EBU** on both the **Source Selection** screen and the remote control.

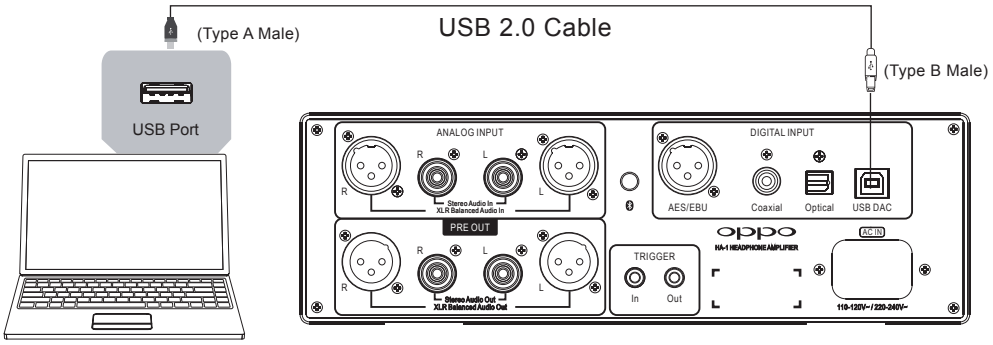


Note:

- The Coaxial, Optical and AES/EBU Digital Audio Inputs accept stereo PCM signals only. Compressed audio signals such as Dolby Digital or DTS are not supported.

USB (Type B) Audio Input

You can connect your computer directly to the HA-1 using a USB-A to USB-B cable. This will allow your computer to function as the digital source, and you will be able to use whatever playback software you prefer to output audio through the HA-1. The digital signal will be converted by the internal DAC and sent to the headphone and line level outputs. This input source is labeled **USB DAC** on the **Source Selection** screen and **USB** on the remote control.

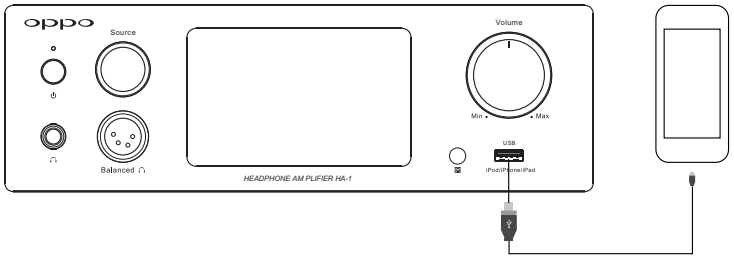


Note:

- Depending on the operating system and playback software used, driver software, specific software settings and configurations may be required in order to enable the computer to play audio into the HA-1. Please visit the HA-1 Support page on the OPPO official website for driver download and additional help guides.

Mobile USB Audio Input

You can connect a compatible iPod, iPhone, or iPad into the **Mobile USB Audio Input** port on the front panel of the HA-1. A 30-pin dock connector to USB cable or a Lightning™ to USB cable that comes with your Apple product is required for this connection. The digital audio signal from your Apple product will be converted by the internal DAC and sent to the headphone and line level outputs. This input source is labeled **MOBILE** on both the **Source Selection** screen and the remote control.

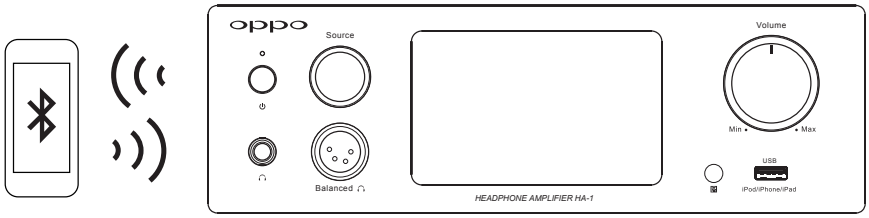


Note:

- USB works with iPhone 5S, iPhone 5C, iPhone 5, iPhone 4S, iPad (4th generation), iPad mini, iPod touch (5th generation).

Bluetooth Audio Connection

You can connect a Bluetooth-capable mobile device such as a smartphone or digital audio player by enabling Bluetooth on your mobile device and searching for and connecting to the OPPO HA-1. Once successfully paired and connected, the Bluetooth digital audio signal will be converted by the internal DAC and sent to the headphone and line level outputs. This input source is labeled **BLUETOOTH** on the **Source Selection** screen and **BT** on the remote control.



Notes:

- Bluetooth technology works with iPhone 5S, iPhone 5C, iPhone 5, iPhone 4S, iPad (4th generation), iPad mini, and iPod touch (5th generation).
- Bluetooth technology also works with any mobile device or computer that supports the Bluetooth A2DP profile.

Bluetooth Setup

When the **BLUETOOTH** input source is selected, the front panel screen displays the Bluetooth connection status. If a device has not yet been paired, or a previously paired device is not in range, the screen will display **Not Connected**. If this is the case, you will need to enable Bluetooth on your mobile device, search for the OPPO HA-1, and attempt to pair with it. After pairing successfully, the HA-1 will display that it is **Connected**.

Once you have paired a Bluetooth device, the HA-1 will attempt to reconnect to it when the device is in range and the **BLUETOOTH** input has been selected on the HA-1. If a new device needs to be paired, but the HA-1 is already connected to a device, you will need to disconnect that device in order to pair the new device. This can be done by un-pairing the HA-1 from the existing device's Bluetooth menu or by temporarily turning off Bluetooth on the existing device.

If the pairing process fails, the HA-1's Bluetooth status will continue to show **Not Connected**. If that is the case, you will need to attempt the pairing process again.

Using the OPPO HA-1

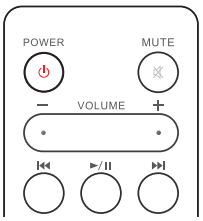
Basic Operations

Power On / Off

When the HA-1 is initially connected to AC power, it stays in standby mode. Pressing the **Power Button** on the HA-1 will result in the **Power Status Indicator** turning blue, indicating the HA-1 has powered on. When the unit is powering on, the OPPO logo will appear on the screen. When it is fully ready, one of the pre-selected **Home Screens** (Status, Spectrum or VU Meter) will appear.

Once the HA-1 has powered on, pressing the **Power Button** again will turn the unit off, at which time the **Power Status Indicator** will turn off, indicating that it is in standby mode.

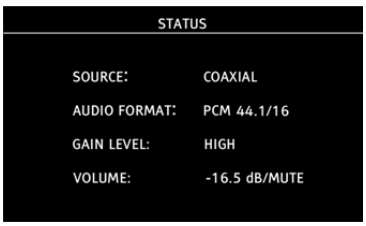
Remote:

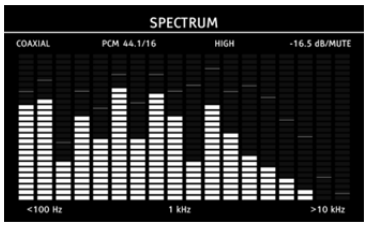


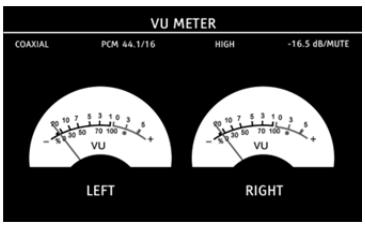
The **POWER** button on the remote control functions in the same way as the **Power Button** on the front panel of the HA-1.

The Front Panel Display

When the HA-1 is in its normal operational mode, it shows one of the pre-selected **Status, Spectrum** or **VU Meter** screen on its **Front Panel Display**. This is called the **Home Screen Selection**.





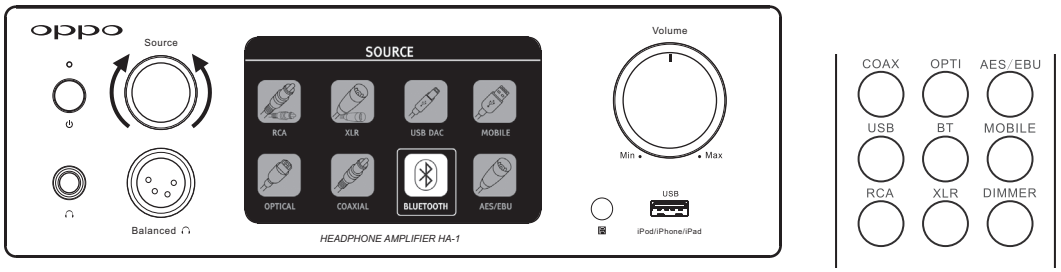


When there is any user operation, the **Front Panel Display** changes accordingly. Please use it as the visual aid for all operations.

Source Selection

The active input source can be selected by rotating the **Source Selector Knob**. The **Front Panel Display** will show a **Source Selection** screen, with the active input source highlighted. When the **Source Selector Knob** is rotated in either direction, a new input source is highlighted. Once you settle down on an input source by leaving the highlight cursor on it or by pressing the **Source Selector Knob**, the new input source becomes active and the **Front Panel Display** returns to the **Home Screen**.

Remote:

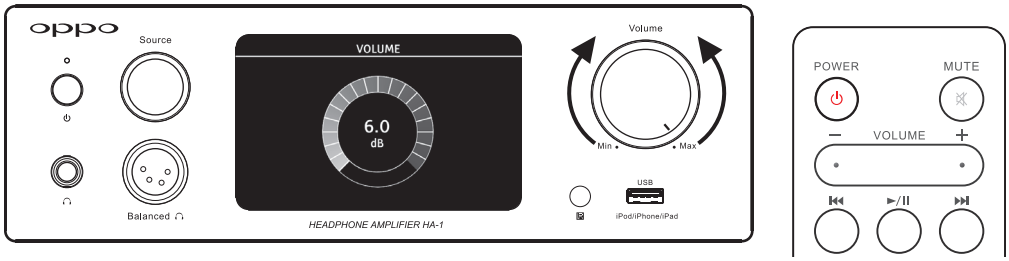


You can also switch input sources by directly pressing the appropriate source button on the remote.

Volume Control

Rotating the **Volume Knob** clockwise or counter-clockwise will increase or decrease the volume level. The **Volume** screen will appear to provide a visual reference for the volume level. The HA-1 implements its volume control with a pure analog signal path. The numeric dB value displayed on the screen is based on the measurement of the **Volume Knob** position. It indicates the approximate gain or attenuation level of the **Pre-amplifier Output** relative to the input signal. It is normal for the display value to vary a few dB when the **Volume Knob** moves in the very low range due to the logarithmic nature of the volume control curve. The actual headphone volume depends on the headphones' sensitivity, the input signal level, and the **Headphone Gain** setting.

Remote:



You can also adjust the volume level by using the **Volume +/-** button on the remote control. The **Front Panel Display** will show the **Volume** screen and the **Volume Knob** will also rotate accordingly.

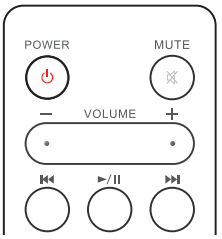
Note:

- It is possible that the **Volume Knob** may be inadvertently rotated when the HA-1 is off. In order to protect the output device, there is a protection mechanism built-in to the HA-1's volume control. When the device is powered on, if the **Volume Knob** position is higher than the previously used volume level before the unit was powered off, the **Volume Knob** will automatically return to the previous volume level. If the **Volume Knob** position is less than the volume level before it was powered off, the HA-1 will keep the new volume level.

Mute

Pressing the **MUTE** button on the remote control will disable audio output for the HA-1, and the **Front Panel Display** will show the **Mute** icon. You can cancel **Mute** by rotating the **Volume Knob**, pressing the **VOLUME +/-** button on the remote control, or by pressing the **MUTE** button again.

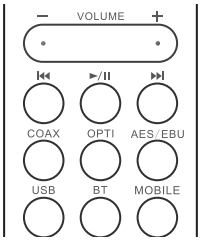
Remote:



For those who use the HA-1 as both a headphone amplifier and a pre-amplifier, it is possible to assign the **MUTE** button to the **Pre-amplifier Output** only. This way the user can mute the large speakers with the **MUTE** button while still being able to listen to the headphones. Please refer to the *Mute Operation* section in the *Advanced Operations* chapter of this manual for details.

Playback Controls

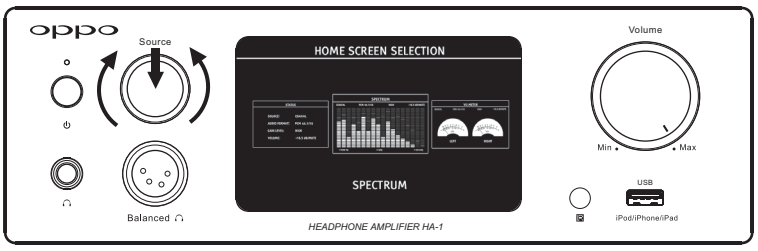
When the active input source is the **USB DAC Audio Input**, **Mobile USB Audio Input**, or **Bluetooth Audio Input**, the **PLAY / PAUSE**, **PREV**, and **NEXT** buttons on the remote control are passed on to the computer or mobile device. This function allows you to control playback by starting, stopping, and skipping to the next or previous track. Not all software or devices support this function. This function does not control devices connected via the Coaxial, Optical, AES/EBU, RCA Stereo, or XLR Balanced Audio Inputs.



Advanced Operations

Advanced configuration of the OPPO HA-1 can be accessed by pressing and rotating the **Source Selector Knob**. The basic operations are:

- Press the **Source Selector Knob** to access advanced configuration screens.
- If the **Source Selector Knob** is pressed again immediately without any other operations occurring on the current configuration screen, the next configuration screen is shown. Repeatedly pressing the **Source Selector Knob** will eventually return you to the **Home Screen** after looping through all available configuration screens.
- In any configuration screen, the current selection is highlighted. Rotate the **Source Selector Knob** to move the selection cursor. The highlighted selection becomes active if you leave the selection cursor on it or press the **Source Selector Knob** to confirm your selection. The **Front Panel Display** returns to the **Home Screen** after a selection is made.

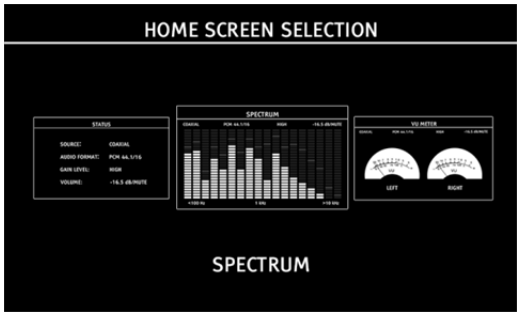


The following configuration screens are available:

Home Screen Selection

You can choose one of three screens to be the **Home Screen** for your HA-1. The **Home Screen** is displayed when the HA-1 is in its normal operation mode.

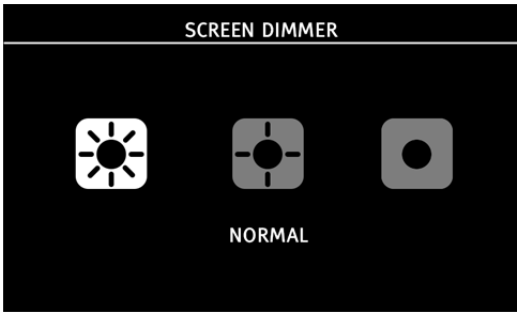
- **Status** (default text-based display) – Status information about the current source and audio stream.
- **Spectrum** – A dynamic spectrum display corresponding to the audio signal.
- **VU Meter** – A pair of traditional VU meters indicating the audio signal level.



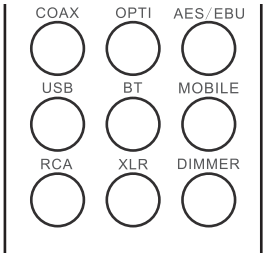
Screen Dimmer Setting

You can adjust the brightness of the **Front Panel Display**. The following selections are available:

- **Normal** (default) – The **Front Panel Display** will operate at full brightness.
- **Dim** – The **Front Panel Display** brightness will be dimmed.
- **Off** – The **Front Panel Display** will be turned off. Any user interaction will turn on the display temporarily to provide you with visual aid. The display turns off again when the HA-1 returns to its normal operation mode.



Remote:



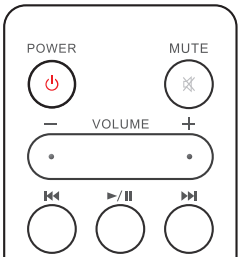
You can also quickly adjust the **Screen Dimmer** setting by pressing the **DIMMER** button on the remote control. Each press of the button moves to the next **Screen Dimmer** selection.

Mute Operation

When using the HA-1 as both a headphone amplifier and a pre-amplifier, it may be desirable to mute the **Pre-amplifier Output** while listening to headphones. For example, if the HA-1 is connected to a pair of active speakers, it may be easier to mute the **Pre-Amplifier Output** than to turn off both speakers when you want to listen with headphones. The **Mute Operation** setting is designed for this type of usage. It controls how the **MUTE** button on the remote control functions. The following selections are available:

- **Mute All** (default) – Both the **Headphone Jack** and **Pre-amplifier Output** are muted when the **MUTE** button is pressed. This condition is indicated by a **Mute** icon on the **Front Panel Display**. Mute is cancelled if the **MUTE** button is pressed again, or if the **Volume Knob** is turned.
- **Mute Pre Out** – Only the **Pre-amplifier Output** is muted when the **MUTE** button is pressed. This is indicated by the word "MUTE" displayed next to the volume level on the **Front Panel Display**. Mute is cancelled if the **MUTE** button is pressed again. Adjusting the **Volume Knob** does not cancel mute so that headphone volume can still be adjusted while the **Pre-amplifier Output** is muted. Please note that when mute is cancelled, the **Pre-amplifier Output** level is determined by the current **Volume Knob** position. Use caution if you listen to the headphones and speakers at significantly different volume levels.

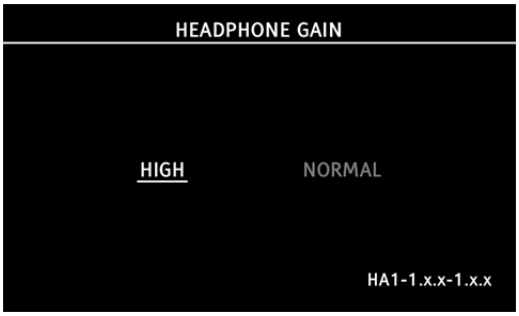
Remote:



Headphone Gain Selection

For optimal sound quality, you can select the **Headphone Gain** setting between **High** and **Normal** in order to properly match the sensitivity and impedance of the headphones in use. The following selections are available:

- **High** (default) – The headphone amplification circuit of the HA-1 applies the high gain level, which is about 18dB higher than **Normal**. This setting is recommended for headphones with low sensitivity or high impedance.
- **Normal** – The headphone amplification circuit of the HA-1 applies the normal gain level. This setting is recommended for headphones with high sensitivity or low impedance.



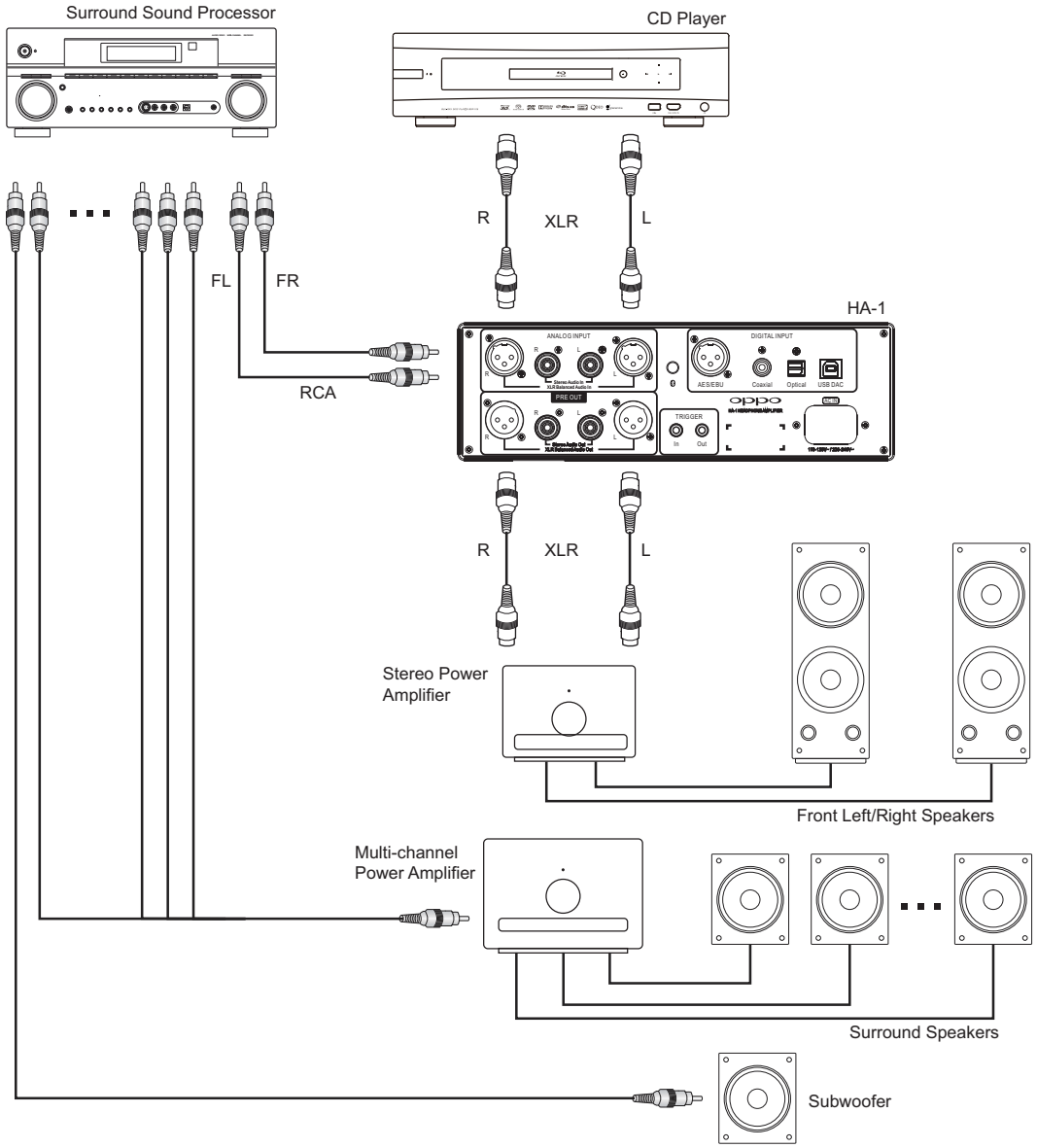
The rule of thumb for selecting the proper gain level is to find a comfortable listening volume that utilizes the upper range of the **Volume Knob**. It is generally better to have the Volume Knob set to a high volume level when using the Normal gain setting rather than having the Volume Knob set to a low volume level when using the High gain setting.

Note:

- In order to prevent a sudden loud sound from damaging your headphones and hearing, please turn down the volume before changing the Headphone Gain setting.

Home Theater Bypass Mode

Each of the HA-1's input sources can be individually configured to operate in a **Home Theater Bypass** mode. If an input source is in this mode, the HA-1's volume control is bypassed for the **Pre-Amplifier Output**. The **Pre-Amplifier Output** level will be exactly the same as the input signal level (unity gain). This feature helps when integrating the HA-1 as a high performance stereo pre-amplifier into a multi-channel home theater sound system. The following diagram shows the typical connection for such a system:



In the above system, when listening to stereo sources (such as the CD player), only the stereo power amplifier, the HA-1 and the source component need to be turned on. Volume is controlled by the HA-1. When listening to multi-channel sources, all components are turned on, and the volume is controlled by the surround sound processor. The HA-1's input source that is connected to the surround sound processor (**RCA Stereo Audio Input** in this example) is configured in **Home Theater Bypass** mode. The HA-1's **Pre-Amplifier Output** level will be exactly the same as the output level of the surround sound processor's front left and right channel output levels because the volume control of the HA-1 is bypassed.

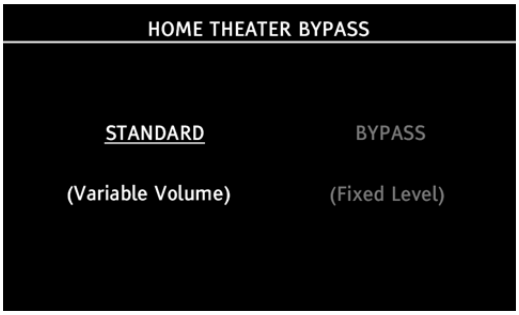
It is important to configure an input source in **Home Theater Bypass** mode only if the connected device has its own volume control. Do not connect a source device (such as a CD player or DVD player) without volume control to an input source in **Home Theater Bypass** mode, since the high output level may cause damage to downstream amplifiers and speakers.

Although digital input sources can be configured to **Home Theater Bypass** mode, it is not recommended. This is because most digital source components do not offer volume control. However, if you intend to use the HA-1 as a pure DAC device connected to another pre-amplifier with proper volume control, you should configure the digital input source to **Home Theater Bypass** mode. This will ensure that the DAC output bypasses the HA-1's volume control.

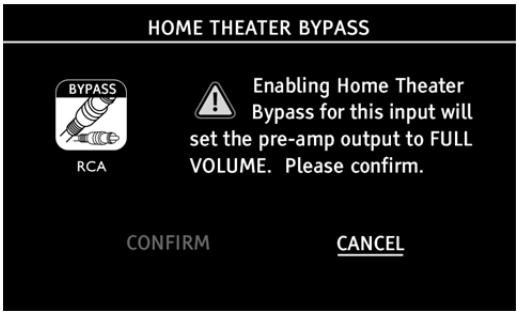
Home Theater Bypass mode only affects the **Pre-Amplifier Output**. The **Headphone Jack** output volume is still controlled by the **Volume Knob** for sources in **Home Theater Bypass** mode.

The **Home Theater Bypass** setting applies to the current input source. Unlike the other settings, this setting is per input, not global. If you need to configure **Home Theater Bypass** mode for multiple input sources, please select each input source and then change the setting. The following selections are available:

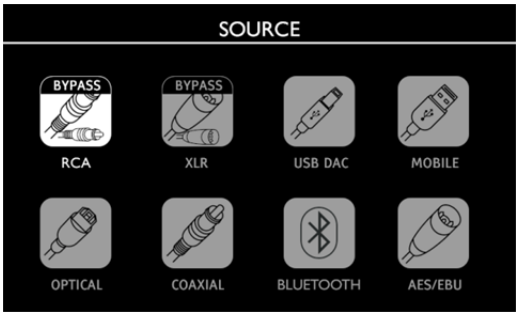
- **Standard (Variable Volume)** (default) – The current input source is in standard mode. **The Pre-Amplifier Output** level is controlled by the Volume Knob.
- **Bypass (Fixed Level)** – The current input source is in **Home Theater Bypass** mode. The **Pre-Amplifier Output** level is fixed at the same level as the input signal, and the **Volume Knob** does not affect the **Pre-Amplifier Output**.



When the **Bypass (Fixed Level)** option is selected, you will be asked to confirm again due to the danger of sending a high signal level to the **Pre-Amplifier Output**. Please make your selection and push the **Source Selector Knob** to confirm.

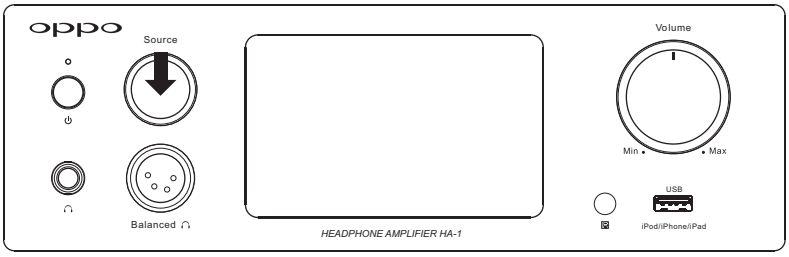


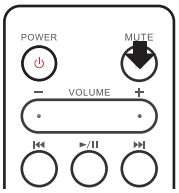
The input sources that are in **Home Theater Bypass** mode are indicated with a “BYPASS” banner in the **Source Selection** screen.



Reset Factory Default Settings

If you need to reset the HA-1 to its factory default settings, please hold down the **Source Selector Knob** on the front panel while at the same time press the **MUTE** button on the remote control. All custom settings will be erased and the factory default settings will be loaded. The **Volume Knob** will automatically return to the minimum volume position. The HA-1 will automatically turn off after resetting to factory default settings.





Reference

Usage Notes

- In order to prolong the life of your headphone amplifier, it is recommended that you wait at least 30 seconds before you power it on after powering it off.
- In the case of a malfunction, please power the unit off, wait for 30 seconds, and then power it back on. If the issue persists, please consult the **Troubleshooting** table or contact an OPPO service center.
- Power the unit off after operation.

Troubleshooting

Use this chart to resolve general operational problems. If there are any problems that you cannot resolve, please contact your OPPO service center.

Symptom	Possible Cause	Solution	Reference Page
No sound	**Mute** is activated. The **Front Panel Display** shows the **Mute** icon.	Press the **MUTE** button or rotate the **Volume Knob** to unmute.	14
	Volume is too low.	Press the **Volume +/-** button or rotate the **Volume Knob** to increase the volume.	14
	The input source is not connected or is not actively playing audio.	Rotate the **Source Selector Knob** or press a source button on the remote to select an active input source.	13
	Audio cable is not properly connected.	Check audio cable. Reconnect if necessary.	7 , 8
Remote control failure	Remote control is out of range.	Use the remote control within the effective range.	6
	Low battery.	Replace the batteries.	5
Temporary malfunction	The protection mechanism is triggered.	Turn off the unit. Wait for 30 seconds, and then try again.	13
	Interference from other devices.	Identify interference by turning off other devices, and then relocate or replace the offending device.	2

User Manual Updates

An updated version of the User Manual may be available online at the OPPO official website. To read or download the latest version of the User Manual, click on the HA-1 from the Product list, and navigate to the Support tab.

Occasional updates are needed to reflect new features added to the device since the User Manual was printed. As future firmware updates provide new features and functions, the online version of the User Manual will be updated accordingly.

Specifications

Designs and specifications are subject to change without notice.

General	
Dimensions (W x H x D)	10.0 x 3.1 x 13.1 inches, 254 x 80 x 333 mm
Mass	13.0 lbs, 5.9 kg
Power Supply	AC 110-120 V~ / 220-240 V~, 50/60 Hz auto-sensing
Power Consumption	70 W (operation), 0.5 W (standby)
Trigger Input	3.5 V – 15 V, 10 mA minimum
Trigger Output	12 V, 100 mA maximum
Operating Temperature	41 °F - 95 °F, 5 °C - 35 °C
Operating Humidity	15% - 75% No condensation
Recommended Headphone Impedance	32 ohm – 600 ohm
Balanced Headphone Jack Output (XLR-4) Pin order	1: L+, 2: L-, 3: R+, 4: R-, Shell: GND
6.35 mm Headphone Jack Output Pin order	Tip: L, Ring: R, Sleeve: GND
XLR Balanced Audio Input	
Input Impedance	15k ohm
Maximum Input Level	18 Vrms, +27.3 dBu (0 dBu = 0.775 Vrms)
RCA Stereo Audio Input	
Input Impedance	10k ohm
Maximum Input Level	9 Vrms, +21.3 dBu (0 dBu = 0.775 Vrms)
Coaxial, Optical, AES/EBU Digital Inputs	
Input Format	Stereo PCM
Sampling Frequencies	44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz
Word Length	16-bit, 24-bit
USB DAC Audio Input (USB B Type)	
Input Format	Stereo PCM, Stereo DSD (DoP v1.1 or native)
PCM Sampling Frequencies	44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz, 352.8 kHz, 384 kHz
PCM Word Length	16-bit, 24-bit, 32-bit
DSD Sampling Frequencies	2.8224 MHz (DSD64), 5.6448 MHz (DSD128), 11.2896 MHz (DSD256, native mode only)
Profile	USB 2.0, USB Audio 2.0
Mobile USB Audio Input (USB A Type)	
Input Format	Stereo PCM
PCM Sampling Frequencies	44.1 kHz, 48 kHz
Profile	USB 2.0, USB Audio 2.0
VBUS Power Output	+5 V, 2.1 A
Bluetooth Audio Input	
Standard	Bluetooth 2.1+EDR
Profile	iAP, SPP, AVRCP, A2DP
Audio Transmission Format	SBC, aptX

DAC Performance Specifications

Specification	XLR Output	RCA Output
Output Level	4.6 ± 0.3 Vrms	2.3 ± 0.3 Vrms
Frequency Response (Tested with -10 dBFS / 384 kHz)	10 Hz – 170 kHz (+0/-3 dB) 20 Hz – 20 kHz (+0/-0.07 dB)	10 Hz – 170 kHz (+0/-3 dB) 20 Hz – 20 kHz (+0/-0.07 dB)
THD+N at 1 kHz (A Weight, 20 Hz – 20 kHz)	< 0.00056% (< -105 dB)	< 0.00056% (< -105 dB)
Channel Separation	> 105 dB	> 105 dB
Signal-to-Noise Ratio (A Weight, 20 Hz – 20 kHz)	> 115 dB	> 113 dB
Dynamic Range (1 kHz -60 dBFS, A Weight, 20 Hz – 20 kHz)	> 115 dB	> 113 dB

(Test condition: USB DAC input in Home Theater Bypass mode and the volume knob at Max position.)

Pre-amplifier Performance Specifications

Specification	XLR Input – XLR Output	RCA Input – RCA Output
Rated Output Level	4.6 Vrms	2.3 Vrms
Frequency Response	10 Hz – 200 kHz (+0/-2 dB) 20 Hz – 20 kHz (+0/-0.04 dB)	10 Hz – 200 kHz (+0/-2 dB) 20 Hz – 20 kHz (+0/-0.04 dB)
THD+N at 1 kHz (A Weight, 20 Hz – 20 kHz)	< 0.00056% (< -105 dB)	< 0.00071% (< -103 dB)
Channel Separation	> 120 dB	> 110 dB
Signal-to-Noise Ratio (A Weight, 20 Hz – 20 kHz)	> 110 dB	> 105 dB
Dynamic Range (1 kHz -60 dB, A Weight, 20 Hz – 20 kHz)	> 120 dB	> 115 dB
Maximum Gain (100 mVrms input)	6 dB	6 dB

(Test condition: Volume knob at Max position and an input signal to drive the output to the rated output level.)

Headphone Power Amplifier Specifications

Specification	Condition	XLR Input - Balanced Output	RCA Input - 6.35 mm Output
Maximum Output Power (Per Channel)	Into 600 Ohm	2400 mW	600 mW
	Into 32 Ohm	3000 mW	3500 mW
Rated Output Power (Per Channel)	Into 600 Ohm	800 mW	200 mW
	Into 32 Ohm	2000 mW	500 mW
Frequency Response at Rated Power		10 Hz – 200 kHz (+0/-1 dB) 20 Hz – 20 kHz (+0/-0.04 dB)	10 Hz – 200 kHz (+0/-1 dB) 20 Hz – 20 kHz (+0/-0.04 dB)
THD+N at 1 kHz (A Weight, 20 Hz – 20 kHz)	Rated Power	< 0.0018% (< -95 dB)	< 0.0056% (< -85 dB)
	50 mW	< 0.001% (< -100 dB)	< 0.0022% (< -93dB)
Channel Separation		> 120 dB	> 90 dB
Signal-to-Noise Ratio (A Weight, 20 Hz – 20 kHz)		> 111 dB	> 111 dB
Dynamic Range (1 kHz -60 dB, A Weight, 20 Hz – 20 kHz)		> 120 dB	> 115 dB
Output Impedance		0.5 Ohm	0.7 Ohm

(Test condition: Volume knob at Max position and an input signal to drive the output with 600 Ohm loads to the rated output power, unless otherwise noted.)

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